

Contra Costa County EMS Agency



2018 Trauma System Plan Status Report

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CONTRA COSTA
HEALTH SERVICES
Emergency Medical Services

SUMMARY OF TRAUMA PLAN STATUS REPORT

Developed in 1985, Contra Costa County's trauma system continues to serve the residents and visitors of Contra Costa County with a single Level II trauma center. In January of 2016, Contra Costa County adopted the recommended CDC Trauma Triage guidelines. There were no significant changes to volume for the year, however as a result of this change, our non-trauma center hospital transports increased by 12% from the prior year. The changes consisted of the marrying of our two policies, "trauma destination criteria and trauma activation criteria (aka direct trauma center transport)" to align with the recommended CDC TTG. The change in policy was implemented to create one clear pathway for our field providers to determine trauma triage as prior years' data showed a potential gap in recognizing trauma patients with additional risk factors, age consideration and systolic blood pressures to name a few.

In 2018, our field providers continue to use Base contact for patient destination determination for patients that are not automatic trauma activations that fit into box 4 ("Special Considerations") of Contra Costa County's trauma triage guidelines.

Organizational Structure

The Contra Costa County trauma system is an integral part of the EMS. The EMS Agency, a division of Contra Costa Health Services, is the Local EMS Agency (LEMSA) as designated by the Board of Supervisors. LEMSA staff include the EMS Director, EMS Medical Director, EMS Programs Coordinator, Emergency Preparedness Manager, seven Prehospital Care Coordinators (nurse or paramedic), and four support staff.

John Muir Medical Center was designated as a trauma center by the County in May 1986, following a request for proposal process as the County's sole Level II Trauma Center. John Muir's designation was renewed in May 1992, following a second request for proposal process providing an additional opportunity for hospitals to seek trauma center designation. The term of the existing contract extends through May 2, 2021 with conditional automatic renewal to 2031.

Although John Muir is the county's sole designated trauma center, the County also recognizes UCSF Benioff's Children's Hospital of Oakland as an Alameda County designated Level I Trauma Center with specialized capability to care for pediatric trauma. The LEMSA has established mechanisms to assure that most pediatric trauma is transported directly to Children's Hospital.

The LEMSA is responsible for overall trauma system monitoring, quality improvement, and oversight of administration of the trauma center designation contract. The established trauma system quality improvement process includes a joint Alameda-Contra Costa County Trauma Audit Committee (TAC), a county-level Pre-TAC Committee, and a trauma registry maintained both by John Muir and by the County EMS Agency.

Trauma Injury Prevention Program

The John Muir Injury Prevention Program has received National Awards of Recognition for its programs and service to the community. John Muir Trauma Services has reached over 20,000 Contra Costa residents directly. In 2017, John Muir continued to implement and improve Trauma Services' Injury prevention/ intervention projects of 2010: *Beyond Violence and Alcohol Screening and Brief Intervention for High Risk Drinking Behavior*. Described below, the following projects continued in 2018:

Beyond Violence

Modeled after Highland Hospital's "Caught in the Crossfire," "Beyond Violence" is aimed at reducing retaliation and re-injury to trauma patients, ages 15-25 years that result in street violence. The program is a collaborative project between John Muir Health, Contra Costa County Health Services, Richmond's Office of Neighborhood Safety, One Day at a Time, and the Williams Group.

Alcohol Screening and Intervention for High Risk Drinking Behavior

A plethora of research has shown a strong correlation between alcohol use and risk for injury. Evidence has also shown that when at-risk drinking behavior is addressed through even a brief intervention with a health care provider, attitudes and behaviors around alcohol use can change, effectively decreasing an individual's risk for injury. Aimed at trauma in-patients, John Muir's goal is to screen and intervene with eligible patients prior to discharge. In 2015, 80% of eligible patients were screened and intervention took place.

Childhood Occupant Protection

The primary goal of the Child Passenger Safety Program is to educate children ages 0-15 years, parents, and other care givers in the proper use of child safety restraints. Under the leadership of Carol Powers, the fitting stations and drive-through clinics of the John Muir Health Child Safety Coalition have been revitalized. There are presently 13 member agencies of the Coalition which include police and fire departments and community-based organizations throughout Contra Costa County. Since 2009, the program has provided over 100 new child restraints annually to families in need. In collaboration with John Muir Women's Health Center, the program

sponsors a fitting station, which checks over 1,000 car seat installations annually and child passenger safety education program such as “Shopping for a Car Seat.”

Occupant Protection for Teens

Although a variety of strategies are used to address this very high-risk population, the largest and most active project, the “Every 15 Minutes” program, is an intense two-day crash scene reenactment aimed at increasing awareness among teens and their parents of the medical, legal, social and financial consequences of drinking and driving. In 2018, John Muir Health continued their participation in “Every 15 minutes” at 5 area schools. Beyond the trauma activation reenactment, John Muir also assists in event planning and the physical (moulage) and emotional preparation of participating students. There are over 50 John Muir nursing volunteers serving the community in this emotionally engaging program.

Child Injury Prevention Network-Bay Area (CIPN)

Founded in 2007 with the aim of bringing together individuals, agencies, and organizations that share a common goal, CIPN has strived to keep children safe from injury through education and outreach in our communities. CIPN is a multidisciplinary group of individuals and agencies crossing county lines committed to building community awareness of injury as a public health priority. Trauma is a major cause of pediatric preventable injury. The group provides networking opportunities, information and data-sharing, and offers individual expertise in various areas in injury prevention. Contra Costa and Alameda counties partner with UCSF Benioff’s Children’s Hospital of Oakland to support network activities.

Contra Costa County Pediatric and Neonatal Disaster and Medical Surge Network

This is an informal “grassroots” network of pediatric, neonatal, emergency care, and disaster professionals from all disciplines, working to support Pediatric and Neonatal Surge Preparedness efforts in our communities. There are no costs or fees. The only requirement is a willingness to participate with like-minded colleagues. A listserv connects participants with ideas, information, resources, and strategies for supporting regional pediatric surge and disaster preparedness on the local, regional and state level. It is anticipated that in a major earthquake, more than 380 pediatric trauma victims will require care in Contra Costa County alone. The Coalition has inspired locals to engage in statewide efforts to support disaster preparedness for infants and children throughout California and regularly reports activities to the EMSAAC Disaster Committee and State EMS for Children Technical Advisory Committee.

2018 Trauma System Data

Helicopter Utilization Report – 2018

Contra Costa Patients Transported by Helicopter¹

Origin	2015		2016		2017		2018	
	Pts.	%	Pts.	%	Pts.	%	Pts.	%
TOTAL	156		184		154		176	
East County	70	44.90%	77	42%	89	58%	109	62%
West County	59	37.90%	62	34%	47	30%	50	29%
South County	10	6.40%	14	7.7%	9	6%	6	3%
Central County	17	10.80%	25	14%	9	6%	11	6%
Not identified			6	3.3	0		0	0%

Source: Data provided to LEMSA by helicopter provider agencies.

Helicopter Transports Originating Within Contra Costa by Provider Agency¹ (scene calls)

Provider	2015		2016		2017		2018	
	Pts.	%	Pts.	%	Pts.	%	Pts.	%
TOTAL	156		184		154		176	
CALSTAR	64	41%	76	41%	86	56%	107	61%
REACH	77	49.4%	97	53%	55	36%	66	38%
CHP	15	9.6%	11	6%	13	8%	3	0.02%

Source: Data provided to LEMSA by helicopter provider agencies.

¹ All transports originated within Contra Costa County.

Helicopter Transports by Destination

Provider	2015		2016		2017		2018	
	Pts.	%	Pts.	%	Pts.	%	Pts.	%
TOTAL	156		184		154		176	
John Muir Health	111	71.1%	134	73%	113	73.3%	141	80%
Children's	29	18.6%	38	21%	19	12.3%	13	7%
UC Davis	n/a		n/a		5	3.3%	n/a	
Eden	n/a		n/a		4	2.6%	n/a	
SCVMC	n/a		n/a		5	3.3%	n/a	
Other/Unknown	16	10.3%	12	6%	8	5.2%	22	13%

Source: Data provided to LEMSA by helicopter provider agencies.

Helicopter Transports by Patient Assessment²

Provider	2015		2016		2017		2018	
	Pts	%	Pts	%	Pts.	%	Pts.	%
TOTAL	156		184		154		176	
Trauma	150	96.1%	179	97.3%	149	97.7%	172	98%
Burn	2	1.3%	5	2.7%	5	3.3%	4	2%
Other	4	2.6%	0	0%	0	0%	0	0%

Source: Data provided to LEMSA by helicopter provider agencies.

² All transports originated within Contra Costa County.

Contra Costa Trauma System Report – 2018

Undertriage by Year

Type of Triage Error	2015	2016	2017	2018
TOTAL UNDERTRIAGES	39	26	23	29
Undertriage Rate ³	2.6	1.4	1.2	1.6
Undertriage % ⁴	2.2	0.8	0.7	0.8
Base Contact for Trauma Destination	11	7	4	8
Triaged by Field Personnel	28	19	19	21

Source: Data provided to LEMSA by John Muir Trauma Registry and Emergency Department Log. Note: Definition of Major Trauma Victim (MTV) modified in 2009 to include only patients with Injury Severity Score (ISS) of greater than 15.

Trauma Center Time on Trauma By-Pass by Year

2015	2016	2017	2018
0.3%	0.2%	< 0.01%	< 0.01%

Source: Data provided to LEMSA from the ReddiNet system.

Base Hospital Activity Summary by Medical Condition

	2015		2016		2017		2018	
	#	%	#	%	#	%	#	%
Total Base Contacts	3,978		5,704		5,863		6,030	
Trauma	3,132	78.7%	4,737	83%	4,680	82%	4,862	81%
Medical	580	14.6%	897	16%	769	14%	986	17%
Arrest	61	1.5%	58	1%	87	1.5%	11	0.2%
Trauma Transfer	205	5.2%	8	.1%	147	2.5%	171	2.8%
Not identified	0	0%	4	.1%	0	0%	0	0%

Source: Data provided to LEMSA by John Muir Walnut Creek.

³ Undertriage Rate = number of under triages/number of patients triaged to trauma centers.

⁴ Undertriage Percent = number of under triages/number of patients triaged to receiving facilities.

Trauma Center - Activity Report 2018

All Trauma Patients Seen at the John Muir Trauma Center, Walnut Creek

	All Patients		Field Transports						Hospital Transfers	
			Total		From Contra Costa		From Another County			
	#	%	#	%	#	%	#	%	#	%
TOTAL PATIENTS	2,271		1,988		1,795		193		283	
Adult Total	2,263	99.6%	1,981	99.6%	1,789	99.8%	192	99.5%	282	99.6%
Pediatric Total	8	0.4%	7	0.4%	6	0.2%	1	0.5%	1	0.4%
Injury Type										
Blunt	2070	91%	1,867	93%	1,801	90%	66	60%	242	85%
Penetrating	201	9%	177	7%	171	10%	6	4.2%	4	15%
Mode of Arrival										
Air Ambulance	112	5%	112	5.6%	52	2.9%	50	26%	9	3.2%
Ground Ambulance	2,090	92%	1821	92%	1721	96%	100	52%	269	96.8%
Private Vehicle	53	2.3%	20	1%	19	1.1%	34	18%	0	0%
Other	16	0.7%	0	0%	0	0%	0	0%	0	0%
County of Injury										
Contra Costa	1,972	87%	1,795	100%	1,795	100%			176	62%
Solano	43	1.9%	43	2.7%			43	22%	4	3.6%
Alameda	18	0.8%	18	0.9%			18	9.3%	6	1.0%
Marin	6	0.3%	6	0.3%			6	3.1%	0	0%
Napa	1	0.04%	1	>1%			1	>1%	0	0%
San Francisco	2	0.09%	2	>1%			2	>1%	1	0%
Other	3	0.13%	3	>1%			3	>1%	1	0%
Injury Severity										
ISS >15 (Major Trauma)	295	13%	276	14%	247	11%	29	15%	65	23%
ISS <15 (Not Major Trauma)	1,909	87%	1,692	86%	1,536	89%	156	81%	217	77%
ED Disposition										
Admitted	1,281	56.4%	959	48%	846	47%	113	59%	253	89%
Expired	18	0.8%	17	0.9%	13	0.7%	4	2%	1	>1%
Home	870	38.3%	828	42%	762	43%	66	34%	27	9.5%
Transfer	41	1.8%	40	2%	39	2.2%	1	>1%	0	0%
Other	60	2.6%	58	3%	49	2.7%	9	4.7%	1	>1%

Source: Data provided to LEMSA by John Muir Trauma Registry.

Trauma Center Activity Report

All Trauma Patients Seen at the John Muir Trauma Center, Walnut Creek by Year⁵

	2015	2016	2017	2018
All Patients	1,768	1,884	1,947	1,988
Adult	1,762	1,880	1,945	1,981
Pediatric	6	4	2	7
Injury Type				
Blunt	1,547	1,629	1,748	1,867
Penetrating	221	212	197	177
Unknown	0	0	0	0
Mode of Arrival				
Air Ambulance	132	139	113	112
Ground Ambulance	1,587	1,573	1,772	1,821
Private Vehicle	47	37	47	20
Other	1	1	0	0
County of Injury				
Contra Costa	1,588	1,719	1,778	1,795
Solano	38	30	49	43
Alameda	15	18	15	18
Marin	9	7	8	6
Napa	3	1	2	1
Sonoma	1	0	0	2
Other	14	10	9	3
Unknown	0	0	6	0
Injury Severity				
ISS >15	390	248	246	276
ISS <15	1,363	1,560	1,701	1,692
Unknown	0	0		0
Major Trauma	22.2%	14%	12.6%	12%
Not Major Trauma	77.8%	83%	87.4%	88%
ED Disposition				
Admitted	1,240	1,226	1,254	959
Expired	21	23	8	17
Home	446	537	611	828
Transfer	15	31	32	40
Other	39	49	42	58
Unknown	0	0	0	0

Source: Data provided to LEMSA by John Muir Trauma Registry and Emergency Department Log

⁵ Includes patients transported from Contra Costa County, from neighboring counties, and from hospitals within/outside of Contra Costa.

